

**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

1-140. (Cancelled)

141. (Original) A three-dimensional structure that self-assembles from derivatized single-wall carbon nanotube molecules comprising:

a plurality of multifunctional single-wall carbon nanotubes assembled into said three-dimensional structure.

142. (Original) The three-dimensional structure of claim 141, wherein said single-wall carbon nanotubes have multifunctional derivatives on their end caps.

143. (Original) The three-dimensional structure of claim 141, wherein said single-wall carbon nanotubes have multifunctional derivatives at multiple locations on said single-wall carbon nanotubes.

144. (Original) The three-dimensional structure of claim 141, wherein said single-wall carbon nanotubes are assembled as a result of van der Waals attractions.

145. (Original) A three-dimensional structure of claim 141, which has electromagnetic properties.

146. (Original) The three-dimensional structure of claim 145, wherein said electromagnetic properties are determined by a functionally-specific agent.

147. (Original) A three-dimensional structure of claim 141, which is symmetrical.

148. (Original) A three-dimensional structure of claim 141, which is not symmetrical.

149. (Original) A three-dimensional structure of claim 141, which has biological properties.

150. (Original) A three-dimensional structure of claim 149, which operates as a catalyst for biochemical reactions.

151-162. (Cancelled)

163. (Previously presented) A method for producing self-assembling component molecules comprising:

- (a) providing single-wall carbon nanotubes; and
- (b) derivatizing at least one of the single-wall carbon nanotubes with a functionally-specific agent, wherein the functionally-specific agent has an attraction for at least one other chemical species.

164. (Previously presented) A method for producing self-assembled structures comprising:

- (a) providing single-wall carbon nanotubes derivatized with at least one functionally-specific agent;
- (b) exposing the derivatized nanotubes to another moiety for which the functionally-specific agent has an attraction; and
- (c) recovering assemblies formed by the derivatized nanotubes.

165. (Previously presented) The method of claim 164 further comprising removing at least one of the functionally-specific agents after the assemblies are formed.

166. (Previously presented) The method of claim 164 further comprising modifying the assemblies by a treatment selected from the group consisting of mechanical, chemical, electrical, optical, biological and combinations thereof.

167. (Previously presented) A structure formed by the process comprising:

- (a) providing single-wall carbon nanotubes derivatized with at least one functionally-specific agent;
- (b) exposing the derivatized nanotubes to another moiety for which the functionally-specific agent has an attraction; and

(c) recovering assemblies formed by the derivatized nanotubes.

168. (Previously presented) The structure of claim 167 wherein the single-wall carbon nanotubes are derivatized with at least two different functionally-specific agents.

169. (Previously presented) The structure of claim 167 wherein the functionally-specific agents are derivatized on the ends of the single-wall carbon nanotubes.

170. (Previously presented) The structure of claim 167 wherein the structure is symmetrical.

171. (Previously presented) The structure of claim 167 wherein the structure is not symmetrical.

172. (Previously presented) The structure of claim 167 wherein the structure is three-dimensional.

173. (Previously presented) The structure of claim 167 wherein the structure is an electrical circuit.

174. (Previously presented) The structure of claim 167 wherein the structure is a diode junction.

175. (Cancelled)

176. (Previously presented) The structure of claim 167 wherein the structure is a capacitor.

177. (Previously presented) The structure of claim 176 wherein the capacitor is a memory element.

178. (Previously presented) The structure of claim 167 wherein the structure is an inductor.

179. (Previously presented) The structure of claim 167 wherein the structure is a pass element.

180. (Previously presented) The structure of claim 167 wherein the structure is a switch.

181. (Previously presented) The structure of claim 167 wherein the structure is an antenna.

182. (Previously presented) The structure of claim 167 wherein the structure is an antenna array.

183. (Previously presented) The structure of claim 167 wherein the structure is capable of interaction with an optical fiber.

184-185. (Cancelled)

186. (Previously presented) The structure of claim 167 wherein the structure is a catalyst.

187. (Previously presented) The structure of claim 167 wherein the structure is a sorbent for specific chemicals.

188. (Previously presented) The structure of claim 167 wherein the structure is resistant to attack by specific chemicals.

189. (Previously presented) The structure of claim 167 wherein the structure is resistant to corrosion.

190. (Previously presented) The structure of claim 167 wherein the structure is a pharmaceutical substance.

191. (Previously presented) The structure of claim 167 wherein the structure is an agent capable of enabling growth of biological systems.

192. (Previously presented) The structure of claim 167 wherein the structure is capable of interacting with biological systems.

193-194. (Cancelled)

195. (New) A three-dimensional structure of claim 149, which interacts with living tissue.

196. (New) A three-dimensional structure of claim 149, which serves as an agent for interaction with functions of a biological system.